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**Investigation of the optical gap in Ge nanowires.**[1] JIAXIN HAN, The University of Texas at Austin, S. P. BECKMAN, The University of Texas at Austin, JAMES CHELIKOWSKY, The University of Texas at Austin — We investigate the role of quantum confinement for the optical and electronic properties of Ge nanowires. Real space pseudopotentials constructed within density functional theory were used to solve the electronic structure problem. We predict the quasiparticle and optical gaps as a function of the diameter up to approximately 3 nm for wires oriented along the (110) and (111) directions. We compare our results to previous work on Si wires.

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